Claims

- 1. A combination of antibodies comprising
 - (a) an anti-HPV-16 E7 antibody obtainable by
 - (i) eliciting an in vivo humoral response against HPV-16 E7 protein or a fragment thereof in a goat; and
 - (ii) affinity-purifying antibodies as obtained in the eliciting-step (i); and
 - (b) an anti-HPV-18 E7 antibody.
- The combination of antibodies of claim 1, wherein said HPV-16 E7 protein or a fragment thereof is recombinantly produced.
- 3. The combination of antibodies of claim 1 or 2, wherein said HPV-16 E7 protein or said fragment thereof is expressed in E. coli.
- 4. The combination of antibodies of any one of claims 1 to 3, wherein said HPV-16 E7 protein or said fragment thereof is highly purified.
- 5. The combination of antibodies of claim 4, wherein said highly purified HPV-16 E7 protein or a fragment thereof is purified by a combination of ion exchange chromatography and gel filtration.
- 6. The combination of antibodies of claim 5, wherein said purification further comprises, prior to ion exchange chromatography and gel filtration, a protein precipitation step.
- 7. The combination of antibodies of any one of claims 1 to 6, wherein said affinity purification of the obtained antibodies is carried out over immobilized HPV-16 E7 protein or a fragment thereof.

- 8. The combination of antibodies of claim 7, wherein said HPV-16 E7 protein or a fragment thereof is immobilized on PVDF membranes, nitrocellulose, sepharose, agarose, DEAE-cellulose or DEAE.
- 9. The combination of antibodies of any one of claims 1 to 8, wherein said anti-HPV-18 E7 antibody is a polyclonal or monoclonal antibody.
- 10. The combination of antibodies of claim 9, wherein said anti-HPV-18 E7 polyclonal antibody is derived from a non-human animal selected from the group consisting of rat, mouse, guinea pig, chicken, duck, sheep, horse, goat, pig, cattle and donkey.
- 11. The combination of antibodies of claim 9, wherein said anti-HPV-18 E7 polyclonal antibody is obtainable by
 - eliciting an in vivo humoral response against highly purified HPV-16 E7
 protein or a fragment thereof in a rabbit; and
 - (ii) affinity-purifying antibodies as obtained in the eliciting-step (i).
- 12. Use of the combination of antibodies of any one of claims 1 to 11 for the preparation of a diagnostic composition for the (immuno-) histological detection of high risk HPV E7 protein.
- 13. The use of claim 12, wherein said high risk HPV is HPV-16, HPV-18, HPV-31, HPV-33, HPV-35, HPV-39, HPV-45, HPV-52, HPV-56, HPV-58 and/or HPV-59.
- 14. The use of claim 12 or 13, wherein said (immuno-) histological detection is carried out on Pap-smears, cervical (carcinoma) biopsies, anogenital biopsies, mamma biopsies, head- or neck biopsies or prostate biopsies.
- 15. The use of any one claims 12 to 14, wherein said diagnostic composition is used for evaluating the risk of acquiring a sexually transmitted disease or cancer, for measuring the status of an existing sexually transmitted disease

or cancer, or for screening therapy efficiency in the treatment of a sexually transmitted disease or cancer.

- 16. A method for the preparation of a diagnostic composition comprising the step of formulating the combination of antibodies of any one of claims 1 to 11 with a diagnostically acceptable carrier, diluent, buffer, or storage solution.
- 17. The use of any one of claims 12 to 15 or the method of claim 16, wherein said diagnostic composition further comprises suitable means for detection.
- 18. A diagnostic composition comprising the combination of antibodies of any one of claims 1 to 11 or obtained by the method of claim 16 or 17.
- 19. A kit comprising the combination of antibodies of any one of claims 1 to 11, or a diagnostic composition of claim 18.
- 20. An in vitro method for the detection of high risk HPV E7 protein comprising the steps of
 - a) incubating a biological sample with the combination of antibodies of any one of claims 1 to 11; and
 - b) measuring and/or detecting E7 protein of high risk HPV, whereby the presence, the absence or the amount of specifically-bound antibodies of the combination of antibodies of any one of claims 1 to 11 is indicative for the presence of high risk HPV E7 protein.
- 21. The method of claim 20, wherein said high risk HPV is HPV-16, HPV-18, HPV-31, HPV-33, HPV-35, HPV-39, HPV-45, HPV-52, HPV-56, HPV-58 and/or HPV-59.
- 22. The method of claim 20, wherein the detection of high risk HPV E7 protein is used for determining the occurrence of a sexually transmittable disease or cancer.

- 23. The method of claim 20 further comprising a further step (c), whereby in said step (c) the presence, the absence or the amount of specifically-bound antibodies of the combination of antibodies of any one of claims 1 to 11 of step (b) is compared to the presence, the absence or the amount of specifically-bound antibodies of the combination of antibodies of any one of claims 1 to 11 in a negative or a positive control sample.
- 24. Use of the combination of antibodies of any one of claims 1 to 11, a diagnostic composition of claim 18 or a kit of claim 19 in an in vitro method for the detection of high risk HPV E7 protein.
- 25. The method of claim 22 or the use of claim 15 wherein said sexually transmitted disease is a high risk HPV infection or wherein said cancer is cervical cancer, breast cancer/mamma cancer, prostate cancer, head and neck cancer, penile cancer and/or anogenital cancer/neoplasia (AIN).
- 26. A method for the production of a combination of an anti-HPV-16 E7 antibody and an anti-HPV-18 E7 antibody comprising the steps of
 - (a) eliciting an in vivo humoral response against HPV-16 E7 protein or a fragment thereof in a goat;
 - (b) affinity-purifying antibodies as obtained in the eliciting-step (a) and
 - (c) mixing the antibody of step (b) with an anti-HPV-18 E7 antibody.
- 27. A method for the production of a combination of an anti-HPV-16 E7 antibody and an anti-HPV-18 E7 antibody comprising the steps of
 - (a) eliciting an in vivo humoral response against HPV-16 E7 protein or a fragment thereof and against HPV-18 E7 protein or a fragment thereof in a goat; and
 - (b) affinity-purifying antibodies as obtained in the eliciting-step (a).
- 28. The method of claim 25 or 26, wherein said HPV-16 E7 protein or fragment thereof is highly-purified.

- 29. The combination of antibodies of any one of claims 1 to 11 or the method of any one of claims 26 to 28, wherein said highly purified HPV-16 E7 protein or said fragment thereof is a native, highly purified HPV-16 E7 protein or a fragment thereof.
- 30. A diagnostic composition comprising the antibody obtainable as described in step (a) of claim 1 or as obtained by the method of any one of claims 26 to 28.
- 31. A method for the preparation of a diagnostic composition comprising the step of formulating the antibody of claim 30 with a diagnostically acceptable carrier, diluent, buffer, or storage solution.
- 32. Use of the antibody obtainable as described in step (a) of claim 1 for the preparation of a diagnostic composition for detecting E7 protein of HPV-31, HPV-33, HPV-35, HPV-39, HPV-45, HPV-52, HPV-56, HPV-58 and/or HPV-59.
- 33. Use of the antibody obtainable as described in step (a) of claim 1 for detecting E7 protein of HPV-31, HPV-33, HPV-35, HPV-39, HPV-45, HPV-52, HPV-56, HPV-58 and/or HPV-59.
- 34. Use of an antibody combination as obtained by the method of any one of claims 26 to 28 for the preparation of a diagnostic composition for detecting E7 protein of HPV-16, HPV-18, HPV-31, HPV-33, HPV-35, HPV-39, HPV-45, HPV-52, HPV-56, HPV-58 and/or HPV-59.
- 35. Use of an antibody combination as obtained by the method of any one of claims 26 to 28 for the preparation of a diagnostic composition for detecting E7 protein of HPV-16 and HPV-18 and HPV-31, HPV-35, HPV-39, HPV-45 and/or HPV-59.
- 36. Use of an antibody combination as obtained by the method of any one of

- claims 26 to 28 for the preparation of a diagnostic composition for detecting E7 protein of HPV-16, HPV-18 and HPV-31.
- 37. A kit comprising the antibody obtainable as described in step (a) of claim 1 or a diagnostic composition of claim 30.
- 38. An in vitro method for the detection of HPV-31, HPV-33, HPV-35, HPV-39, HPV-45, HPV-52, HPV-56, HPV-58 and/or HPV-59 E7 protein comprising the steps of
 - a) incubating a biological sample with the antibody obtainable as described in step (a) of claim 1 or the antibody combination of any one of claims 1 to 11 or an antibody combination as obtained by the method of any one of claims 26 to 28; and
 - c) measuring and/or detecting E7 protein of HPV-31, HPV-33, HPV-35, HPV-39, HPV-45, HPV-52, HPV-56, HPV-58 and/or HPV-59,

whereby the presence, the absence or the amount of specifically-bound said antibodies is indicative for the presence of high risk HPV E7 protein .